

FightR™ LXD Friction Reducer Enables Operator to Improve Logistics and Performance

DRY FRICTION REDUCER REDUCES HYDROCARBONS ON MULTIPLE JOBS IN THE SOUTHEAST REGION

EAGLE FORD, TEXAS

CHALLENGE

Significantly reduce hydrocarbons and HSE risks at the wellsite, while still maintaining or exceeding current performance levels

SOLUTION

FightR™ LXD dry friction reducer and patent-pending delivery method to improve operator's HSE and logistical profiles and to significantly reduce the amount of hydrocarbons required for these operations

RESULTS

- » Eliminated 165,000 gallons of hydrocarbons through the reduction of 28 transport trucks from the wellsite
- » Achieved a 15 percent decrease in treating pressure
- » Improved operator's HSE and logistical profiles

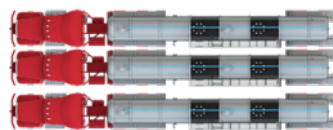
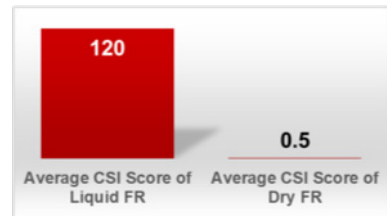
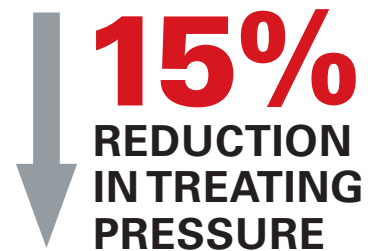
OVERVIEW

A major operator in the Eagle Ford shale play used the Halliburton FightR™ LXD dry friction reducer (FR) on multiple wells across the basin in an effort to improve its health, safety, and environmental (HSE) profile and transport logistics.

Through the use of dry FRs, 165,000 gallons of hydrocarbons were eliminated from the job and up to a 15 percent decrease in treating pressure was realized.

CHALLENGE

Liquid friction reducers contain a hydrocarbon carrier fluid, which adds unnecessary logistical requirements to a frac job. Additionally, liquid FRs may have issues in extreme cold or heat environments due to the freeze point, pour point, or viscosity of the product. Traditionally, it has not been easy for service companies to pump dry materials due to unmovable/caking issues or pump cavitation while attempting to deliver these materials downhole. With our patent-pending delivery method, however, we are able to successfully deliver dry FRs to the wellsite.



Liquid FR
3 x 4000 gallon transport
~30,000 lbs of polymer



HVDFR / DFR
1x Dry Gel Fruehauf
~35,000 lbs of polymer
~3 times more polymer per delivery with HVDFR / DFR

SOLUTION

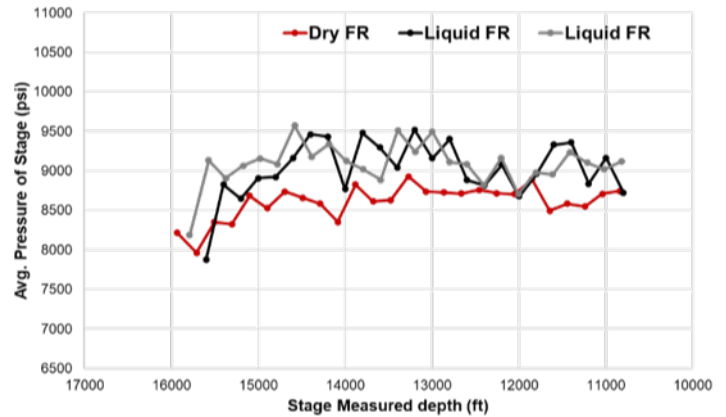
Halliburton dry friction reducers offer an improvement to the HSE profile of the materials, as compared to liquid FRs, while also providing significant logistical improvements. While liquid FRs have a Halliburton Chemistry Scoring Index (CSI) score of 120, dry FRs have a CSI score of only 0.5. This is a 240 percent improvement in HSE profile. Regarding logistics, where liquid FRs would require three, 4,000-gallon transports, a single dry-gel Fruehauf trailer can be used to deliver the same amount of polymer. This means fewer trucks on the road, fewer trucks on location, and lower fuel consumption. For example, for every 300 gallons or six 50-gallon fuel tanks of diesel not put on the road, this Halliburton dry FR product line saves 1 ton of diesel fuel. Finally, with the removal of the hydrocarbon-based carrier fluid, impurities and potential chemical compatibilities associated with that carrier fluid are eliminated.

Overall, the positive impacts on HSE, logistics, and performance from using FightR LXD friction reducers were a huge win for both the operator and Halliburton.

RESULTS

Ten wells in the Eagle Ford basin were treated with FightR LXD friction reducers. All were completed to design. These 10 wells, comprising 351 stages, were performed with zero non-productive time (NPT) or operational issues. Up to a 15 percent decrease in treating pressure was observed when comparing average treating pressure between dry FR stages and liquid FR stages that had very similar total measured depths.

The graph to the right shows this comparison: one well with dry FR (red line) vs. two wells (on the same pad) that pumped the equivalent concentration of liquid FR (gray and black). Each point represents one treatment stage and is plotted on the x-axis as a function of its total measured depth; the y-axis represents the average surface treating pressure for those stages.



The closest stages, in terms of measured depth, were used for this comparison. Nearly all of the stages, across this set of 26, saw lower average surface treating pressure with the dry FR when compared to the liquid FR. The largest observed difference was 15 percent. On average, the stages that utilized dry FR had 6 percent lower surface treating pressure than its liquid FR counterpart.

Across these 10 wells, 495,000 pounds of dry FR were pumped, resulting in the elimination of 165,000 gallons of emulsion-based, oil-containing additive and the reduction of 28 transport trucks from the road and on the wellsite, thereby reducing the overall footprint of the frac job. With that reduction in trucks, came a 5 ton reduction in diesel usage. The reduction of trucks from the road provided a safety advantage and an environmental win.

Overall, the positive impacts on HSE, logistics, and performance from using FightR LXD friction reducers were a huge win for both the operator and Halliburton.

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